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(SEE BULLETIN NO. 1) T. C. LAU

BABY HAS THE RUMBLE SEAT BUT SONNY WALKS AS MOTHER TAKES LOADED BASKETS TO MARKET NEAR CANTON, CHINA

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Bulletin No. 1, May 5, 1952

China Lacks Oil for Lamps and War

THE good earth of China yields little black gold. Enough oil never has been produced within the vast country to light China's millions of kerosene-fired lamps, lift its planes, drive its trucks, and lubricate its railroads and factories.

Now, cut off from American, British, Indonesian, and Middle Eastern imports of oil, the Chinese communists are reported facing dwindling supplies of fuel for their military machine in Korea.

China's Empty Tanks

Along the China coast American oil corporations owned storage terminals before World War II, as did British and Dutch firms. A distributing system branched out to all parts of China. Packaging plants transferred oil products to tin cans, wooden crates, and steel drums, since lack of railroads and truck lines made it often necessary to ship oil in small packages by river junk, camel back, and wheelbarrow.

Long years of costly prospecting found scant petroleum beneath the vast reaches of China's plains and mountains. On the edge of the Gobi (desert), in the sparsely populated northwest mountain province of Kansu (illustration, next page), the only oil field worthy of the name in all China "came in" in 1939 near Yumen and pumped out a peak of about 1,000 barrels a day during World War II.

Shensi and Szechwan provinces are known to have oil. Far to the west, in wild Sinkiang Province, north of Tibet, Russian technicians have drilled wells and built a small refinery near Wusu on the northern wall of the Tien Shan range.

Transport to connect eastern China with these remote districts is lacking. During the war a 2,700-mile road was coolie-constructed from Chungking north through the Yumen oil region, west through Sinkiang, and on to Ayaguz inside Russia. Over this road, following the track of the great silk routes across Asia, supplies trickled from Russia.

Manchurian Plants Stripped of Machinery

Closest to the Korean battleground is the potential oil of two Japanese-built shale-extraction plants at Fushun, Manchuria, little more than 100 air miles north of the Yalu. Another plant at Yungki (Kirin) produced oil from Manchurian coal ten years ago.

Ironically, these modern installations, once pumping forth several hundred barrels of oil and gasoline a day, were stripped of their machinery in Russia's "war booty" grab in 1946.

As Free China did during the Japanese war, it is probable that the Chinese are again burning liquid fuels made from sugar cane, grains, tung nuts, or camphor. Today's only source of foreign oil is Russia.

Sakhalin, a black, cold island off the Siberian coast, geographically part of the Japanese archipelago, holds Russia's major Far Eastern oil

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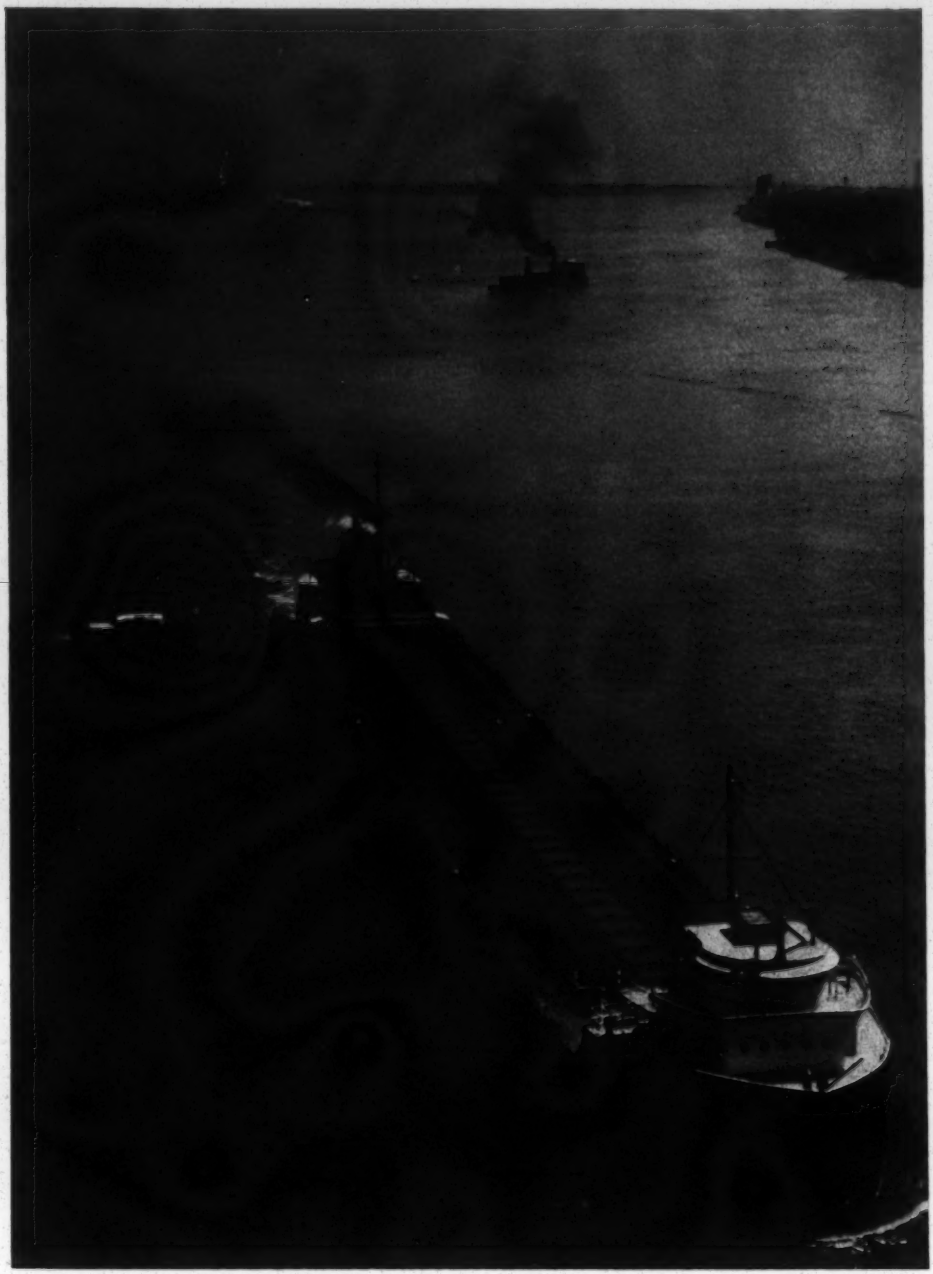

CY LA TOUR

A BLOCK-LONG GREAT LAKES ORE BOAT PASSES THROUGH THE NARROWS OF DETROIT RIVER

The carrier transports 13,750 tons of iron ore taken from the mines of Mesabi, in northern Minnesota. Destination: eastern Lake Erie and Pittsburgh's steel mills, 1,100 miles from the starting point. Such vessels load in three hours or less. They haul about 100,000,000 tons of ore in the ice-free months each year on the Great Lakes (Bulletin No. 5).

Bulletin No. 2, May 5, 1952

Prince Charles May Be 21st Prince of Wales

THE people of Wales have asked Queen Elizabeth II to name her four-year-old son; Prince Charles, the 21st Prince of Wales. By right of succession, the little prince is Duke of Cornwall, Earl of Carrick, Baron of Renfrew, Lord of the Isles, Prince and Great Steward of Scotland.

Legend has it that King Edward I of England agreed to give the rebellious Welsh chieftains a ruler who could speak no English, if they would surrender peaceably. At Caernarvon Castle (illustration, next page) he dramatically presented to them his newborn son.

The boy did in fact become the first Prince of Wales, but not by request, and not until 1301, when he was 17. Edward I revived the principality of Wales, apparently to set up a Welsh authority to hold the chiefs in check. As first Prince of Wales, Edward II acquired extensive lands which lent prestige to the crown.

Northern Welshmen Resemble English

The realm which gave this 14th-century prince his title is a mountain land rimmed on the north, west, and south by the Irish Sea, bordered on the east by the English Midlands. Nearly all of Wales is at least 600 feet above sea level. Snowdon, highest peak in England and Wales, rises 3,560 feet in the northwest corner of Wales.

Wales has many rivers which rise in the mountains and rush to the sea, gouging deep valleys through the wild country. The rugged nature of the land has made travel difficult and resulted in great diversity among the people. The natives of northern Wales are much like the English of neighboring Lancashire and Cheshire. Those in the remote mountains often speak only Welsh, and have little in common with the English.

South Wales is the coal-mining district and site of one of the newest and largest steel plants in the world. Wales was the world's chief coal exporter from 1881 until after World War I. Then increased demand at home, developments in use of other fuels and of coal resources abroad, and decrease in more easily reached deposits reduced coal shipments from Cardiff, largest and most important commercial city of Wales.

Famous Hymn Written in North Wales

Coal is not the only mineral resource. Slate and limestone are quarried. Since the Romans began mining in the first century A.D., copper, lead, iron, and zinc have been produced, and gold from Merioneth still supplies metal for the wedding rings of the royal family. From Merioneth also comes one of the British titles conferred on Prince Philip of Greece when he married Princess Elizabeth. The father of the possible future Prince of Wales is Earl of Merioneth as well as Duke of Edinburgh.

Northeastern Wales is center of the wool industry. Factories there produce paper, chemicals, and artificial silk. This region also produced one of the world's most famous hymns. "From Greenland's Icy Mountains" was written in 1809 at Wrexham where the author, Reginald Heber —later a bishop—was visiting his father-in-law.

Wales has been governed with England since the reign of Henry VIII

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field. Its production has been estimated at 6,000,000 barrels a year. A pipeline runs from the northern tip of the island south to the trans-Siberian railroad, which has branches leading into Manchuria.

From Baku in the Caucasus, Russian railroad tank cars may be traveling the entire breadth of Asia with oil for China, a trip that takes 10 to 14 days. There are no known pipelines from Russia into China such as the Calcutta to Kunming pipe laid down along the Stilwell Road by American engineers during the World War II and now dismantled.

NOTE: Regions in China where oil has been produced may be located on the National Geographic Society's map of China. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also, "Trawling the China Seas," in the *National Geographic Magazine* for March, 1950; "Kunming Pilgrimage" (20 photographs), February, 1950; "Power Comes Back to Peiping," September, 1949; "Along the Yangtze, Main Street of China," March, 1948; "Hong Kong Restored" (9 photographs), April, 1947; "In Manchuria Now," March, 1947; "Kunming, Southwestern Gateway to China," August, 1946; and "China Opens Her Wild West," September, 1942. *Back issues of the Magazine may be obtained from the Society's headquarters at 60¢ a copy, 1946 to date; $1.00, 1930-1945; $2.00, 1912-1929. Earlier issues, when still in print, varied prices.*

HANS KOESTER

IN CHINA'S NORTHWEST, LANCHOW HUDDLES BETWEEN BARREN MOUNTAINS AND A VAST CEMETERY

The walled city is the capital of Kansu, a narrow province which borders the Mongolian plateau and approaches the desert sands of the Gobi. China's only known oil field of importance, at Yumen, lies in this arid region.

Bulletin No. 3, May 5, 1952

Recent Midwest Quake Had Many Predecessors

THE recent earthquake that centered near Oklahoma City and shook seven states is the latest in a series of tremors that have disturbed the basin of the Mississippi River over the past 150 years.

Even though the region is not in one of the world's "earthquake belts," such as that ringing the Pacific Ocean, the central part of the United States has felt frequent minor temblors and at least one major quake since white settlement.

Created Reelfoot Lake

Indians had traditions of earthquakes in the Mississippi basin long before the appearance of the white man, and several violent tremors, known as the New Madrid earthquake, altered the face of the river valley in the winter of 1811-12.

This quake wrecked the town of New Madrid, Missouri, dumping much of it into the Mississippi River, whose waters alternately receded and overflowed the banks. Other riverside towns suffered severely, and the water tumbled into depressions formed by the temblor.

Greatest visible change was the creation of Reelfoot Lake, Tennessee, where only forest had stood before (illustration, next page). The lake is about 14 miles long and four miles wide. Other lakes and swamps were formed on both sides of the Mississippi.

Sand Boiled from Cracks in Earth

An eye-witness account of the New Madrid quake, though perhaps exaggerated, described the most violent of the concussions in the following terms: "The Mississippi first seemed to recede from its banks, and its waters gathered up like a mountain, leaving for a moment many boats . . . on the bare sand. . . . Then, rising 15 or 20 feet . . . the banks overflowed with a retrograde current rapid as a torrent. The boats . . . were now torn from their moorings. . . .

"The surface of the earth was . . . covered . . . by sand which issued from fissures. . . . Some of these closed up immediately, after they had vomited forth their sand and water."

Only about 30 persons died in the New Madrid quake. The area was sparsely settled at the time. The Tennessee portion of the affected area was still called Indian Country. Such a tremor today would be a major disaster, affecting great industrial cities, numerous small towns, and thickly settled farmland. It would probably cause ten times the damage of the San Francisco earthquake of 1906.

Other Temblors Noted

Other tremors have been felt in the south central United States since the New Madrid shock, notably the Memphis earthquake of January 4, 1843, which lasted two minutes and caused people from St. Louis to the Gulf of Mexico to flee their homes.

The Charleston, South Carolina, earthquake of 1886, which claimed

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when the 13 shires of Wales were given equal representation with England in the Parliament at Westminster.

The first Prince of Wales did not pass the title on to his son. It is not hereditary, but must always be conferred. Many of the 20 sons of English monarchs who have held the title are outstanding and often romantic figures in history. The second—Edward II's grandson, the Black Prince—distinguished himself at Crécy and Poitiers with his Welsh troops.

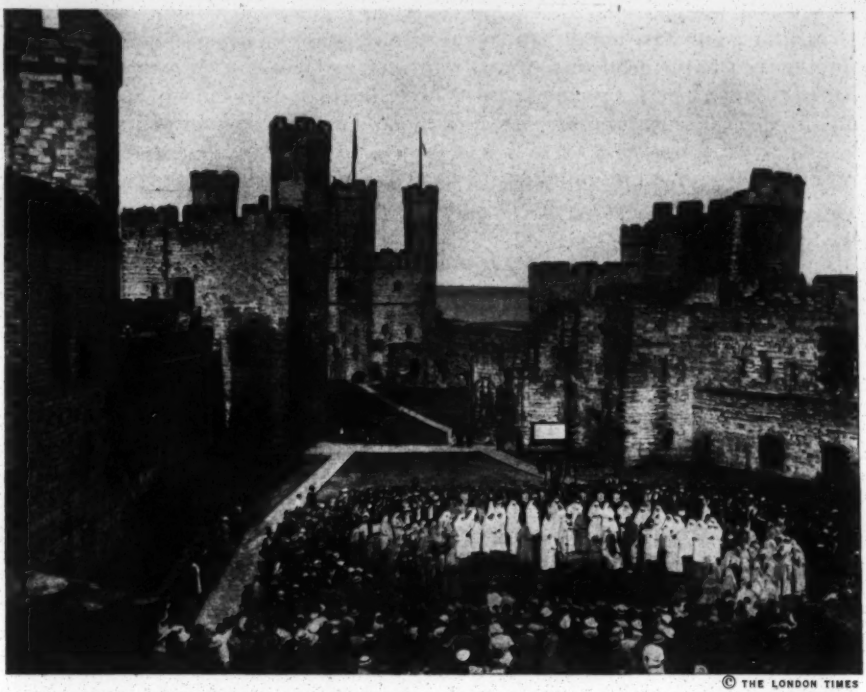
The gay life of Henry V as Prince of Wales was immortalized by Shakespeare. He was a hero to his people and led the English to a brilliant victory at Agincourt in 1415.

Another Prince of Wales named Charles—"Bonnie Prince Charlie"—was a soldier at 13. His lifelong efforts to get the crown ended in defeat at the Battle of Culloden (Scotland) in 1746.

Queen Victoria's son Edward held the title longest. He was a month old when his mother made him Prince of Wales. He bore the title for 60 years, until Victoria died in 1901, and he became Edward VII. His grandson, Edward VIII, now Duke of Windsor and great uncle of little Prince Charles, was the last Prince of Wales—number twenty.

NOTE: Wales is shown on the Society's map of The British Isles.

See also, "Wales in Wartime," in the *National Geographic Magazine*, June, 1944; "Sheep Dog Trials at Llangollen," April, 1940; and, in the GEOGRAPHIC SCHOOL BULLETINS, February 28, 1949, "Cardiff Seeks Recognition as Welsh Capital."



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CAERNARVON'S ANCIENT WALLS ECHO TO MODERN WELSH VOICES AS THE EISTEDDFOD IS PRESENTED

The traditional pageant of music and poetry is a legacy from pre-Christian times. In its present form it is believed to date from a festival held in Cardigan in 1176. It is now held annually, being presented, usually, in the north one year, in the south the next.

Bulletin No. 4, May 5, 1952

World Honors Leonardo on His 500th Birthday

PEOPLE all over the world, on both sides of the Iron Curtain, pay homage this year to the great Italian Renaissance scientist, inventor, and painter —Leonardo da Vinci. On April 15, 1952, Italian officials and their foreign guests gathered at the village of Vinci, 17 miles west of Florence, to honor its greatest son. Five hundred years ago on that date, Leonardo was born there. The small brownstone birthplace is being restored this year as a permanent memorial.

Da Vinci traveled throughout the length and breadth of Italy. As a youth of 16 he went to Florence where his father enrolled him in the painters' guild. Young Leonardo served his apprenticeship under Verrocchio, well-known painter, sculptor, and silversmith.

Pupil Surpassed the Master

Commissioned to paint "The Baptism of Christ" for a monastery, Verrocchio allowed his young apprentice to complete an angel in the left-hand corner. The angel stands today, a shaft of sunny animation in an otherwise cold, labored picture. Verrocchio turned away stunned, realizing his pupil had surpassed him.

Florence flourished 500 years ago as a bright center of Renaissance art and culture. The Medici family ruled. The head of the house, Lorenzo the Magnificent, became Leonardo's patron. In the lavish Medici palace the artist worked many years. In addition to art, nature study occupied him. He studied the human body and learned that blood moved. He came near to discovering the secret of blood circulation.

Leonardo spent nearly half his 67 years in Florence. In middle age he returned to paint his most famous portrait, the "Mona Lisa." He worked at the painting off and on for four successive years. While his subject, a rich Neapolitan noblewoman, posed, music played to keep her rapt expression from changing. King Francis I of France bought the picture. Now it hangs in the Louvre, Paris's most famous art gallery.

Milan Then and Now

Beginning in 1483, Leonardo worked in Milan, 150 miles northeast of Florence. Then, as now, it was Italy's wealthiest manufacturing and commercial center. Today Milan builds locomotives, steam boilers, and metal bridges instead of armor for medieval knights. Textile industries remain as important as they were five hundred years ago. Leonardo found prosperous silk factories in Milan. The city still produces silk goods, along with cotton, wool, linen, and jute.

Milan's ruling family was the Sforzas. To its head, Ludovico Sforza, Leonardo offered his services as sculptor, architect, engineer, and painter. As sculptor, he modeled a colossal statue of the founder of the Sforza ruling house—long since lost. As architect, he submitted plans and models for the completion of Milan cathedral—none of which were carried out. As engineer, he proposed a complete reconstruction of the city on improved sanitary principles after a bad plague epidemic. And as a painter he gave to Milan and the world his most famous painting "The Last Supper."

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some 100 deaths, was felt in the Mississippi Valley region, and distinct tremors have been noted a dozen other times in the past century.

Earthquakes in the Mississippi River area are generally attributed to the settling of rock far beneath the surface of the earth. Some have followed heavy floods.

NOTE: Areas of the United States which have experienced earthquakes may be located on the Society's map of The United States of America, and also on the various regional maps of the United States, such as the North Central United States, the South Central United States, Southeastern United States, etc.

For additional information see, "Caught in the Assam-Tibet Earthquake," in the *National Geographic Magazine* for March, 1952; "Our Home-town Planet, Earth," January, 1952; "Where Earthquakes Followed Timur's Trail," March, 1940; and "Sakurajima, Japan's Greatest Volcanic Eruption," April, 1924.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, March 31, 1952, "Few Lives Lost in Japan's Record Earthquake"; and "Ecuador Knows Constant Threat of Nature," October 10, 1949.

U. S. ARMY AIR SERVICE

REELFOOT FISHERMEN IN A BOW-FACED BOAT ROW THROUGH A YONCOPIN LILY PATCH

The earthquake lake of western Tennessee has so many dead stumps and other obstructions that local fishermen use boats with oars geared to allow them to face the direction they are going. Plant and fish life now fill the lake formed when an earthquake struck the midwest in 1811-12. These Yoncopin lilies are the American equivalent of the Egyptian lotus.

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Bulletin No. 5, May 5, 1952

Great Lakes Are Brimming Over

RISING water at the doorsteps of waterfront city buildings and summer cottages from Duluth to Chicago, Sault Ste. Marie to Kingston, gives increasing evidence of a Great Lakes mystery. America's five inland seas (map, next page) are brimming over.

Born of the melting Ice Age, the Great Lakes contain half the fresh water on earth. Behind the hard-rock sills of Niagara Falls and the "Soo," lying in huge stair-stepped basins stoppered by the islands of the St. Lawrence River, is enough water to cover the continental United States 10 to 18 feet deep. Lake Superior is the largest fresh-water body in the world; Huron is third, Michigan fourth, Erie tenth, and Ontario twelfth.

Experts Say Man Not at Fault

Levels of the Great Lakes fluctuate from year to year, month to month, and day to day. In the past year, the water level has risen to more than four feet above normal. As the runoff of a wet winter flows in from a 325,000-square-mile watershed, all five lakes have been creeping even higher. Shipping (illustration, inside cover) is not affected.

While damage spreads, irate property owners sue the United States government. State and federal agencies investigate. Congress passes resolutions. Yet experts say that all the works of man on the Great Lakes —dams and canals, dikes and dredging—have affected water levels only a matter of a few inches over the past century.

Nature measures its changes in feet. Etched in ancient shore lines, carved by channels that once ran wide and deep where dry valleys and great cities stand today, are boundaries the lakes have filled across the past 35,000 years. Wind and storm slosh the waters back and forth in their beds. Periods of rain and drought are constantly changing the level of the lakes.

Around the deep-cradled water the earth's surface is gradually tilting. Over long centuries, north and east of the lakes, the land is lifting, recovering very slowly from a massive dimple pressed into the earth by the crushing weight of the great ice cap. South and west of the lakes, the earth is sinking. As a result, shore lines of all the lakes are slowly changing.

Lakes Form Upper Basin of St. Lawrence

There are tides in the Great Lakes pulled by moon and sun, but they are small. Of far greater effect are low- and high-pressure areas moving across the waters with the changing weather. As the lake surface is pushed down in one place by air pressure, it rises in another. The waves caused by such variations are called seiches.

In the end, the Great Lakes can be regarded as the bulging headwaters of a single river. From the western tip of Lake Superior, they form the upper basin of the St. Lawrence, natural reservoirs feeding and controlling its relentless outflow to the sea.

Over the limestone lip of Niagara's giant faucet pours an average of 212,000 cubic feet of water a second. It surges into Lake Ontario, and

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Depressed by the death of a close friend, Beatrice, Countess of Este, Leonardo began frequenting her favorite retreat, the low, gloomy, Dominican church of Santa Maria delle Grazie. On the damp wall of the dining hall, oozing with mineral salts, the sad artist painted "The Last Supper." Flakes of plaster fell as he worked and hard crusts of mildew formed. Today the painting is slowly disappearing from view.

Leonardo da Vinci's last years were wandering ones. He built war machines for the infamous conqueror, Cesare Borgia. Four years before the great artist died he entered the service of the French king. He spent his last years in a small French castle.

NOTE: The Society's map of Europe and the Near East shows cities associated with Leonardo da Vinci.

For additional information on the region, see "A Stroll to Venice," in the *National Geographic Magazine* for September, 1951; "Italy Smiles Again," June, 1949; "Return to Florence," March, 1945; "Behind the Lines in Italy," July, 1944; and "Italy, From Roman Ruins to Radio," March, 1940.

ACME

LEONARDO DA VINCI'S "THE LAST SUPPER" IS SLOWLY FADING FROM VIEW IN A MILAN CHURCH

The Renaissance genius painted this masterpiece in the dining hall of Milan's Church of the Graces. His paints did not cling properly to the damp walls. American bombs damaged the room during World War I and the painting suffered further from dampness. Restoration attempts have been unsuccessful. Many American soldiers on leave from European bases have viewed this vanishing work of art.

GEOGRAPHIC MAPS—TIMELY AIDS TO EDUCATION

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out again through the sieve of the Thousand Islands. Far above, and from all the shores, water comes into the lakes from thousands of streams and brooks, rivulets and forest-bordered rivers.

Between the two, source and ceaseless outflow, a balance is struck. When wet years follow each other closely, the lakes rise; in dry decades, they fall. Against beaches and towering bluffs, the water level floods and ebbs, never quite the same, never still.

NOTE: The Great Lakes and the upper St. Lawrence River are shown on the Society's map of the Northeastern United States. The map of the North Central United States shows the northern shores of Lake Superior which do not appear in the first-mentioned map. The entire basin of the lakes and the course of the St. Lawrence are shown on the map of North America.

For additional information, see "*J. W. Westcott*, Postman for the Great Lakes," in the *National Geographic Magazine* for December, 1950; "Sea to Lakes on the St. Lawrence," September, 1950; "Quebec's Forests, Farms, and Frontiers," October, 1949; "Great Lakes and Great Industries" (19 color photographs), December, 1944; "By Car and Steamer Around Our Inland Seas," April, 1934; and "Ontario, Next Door" (out of print; refer to your library), August, 1932.

DRAWN BY C. E. RIDDIFORD

THE GREAT LAKES ARE NORTH AMERICA'S FRESH-WATER MEDITERRANEAN